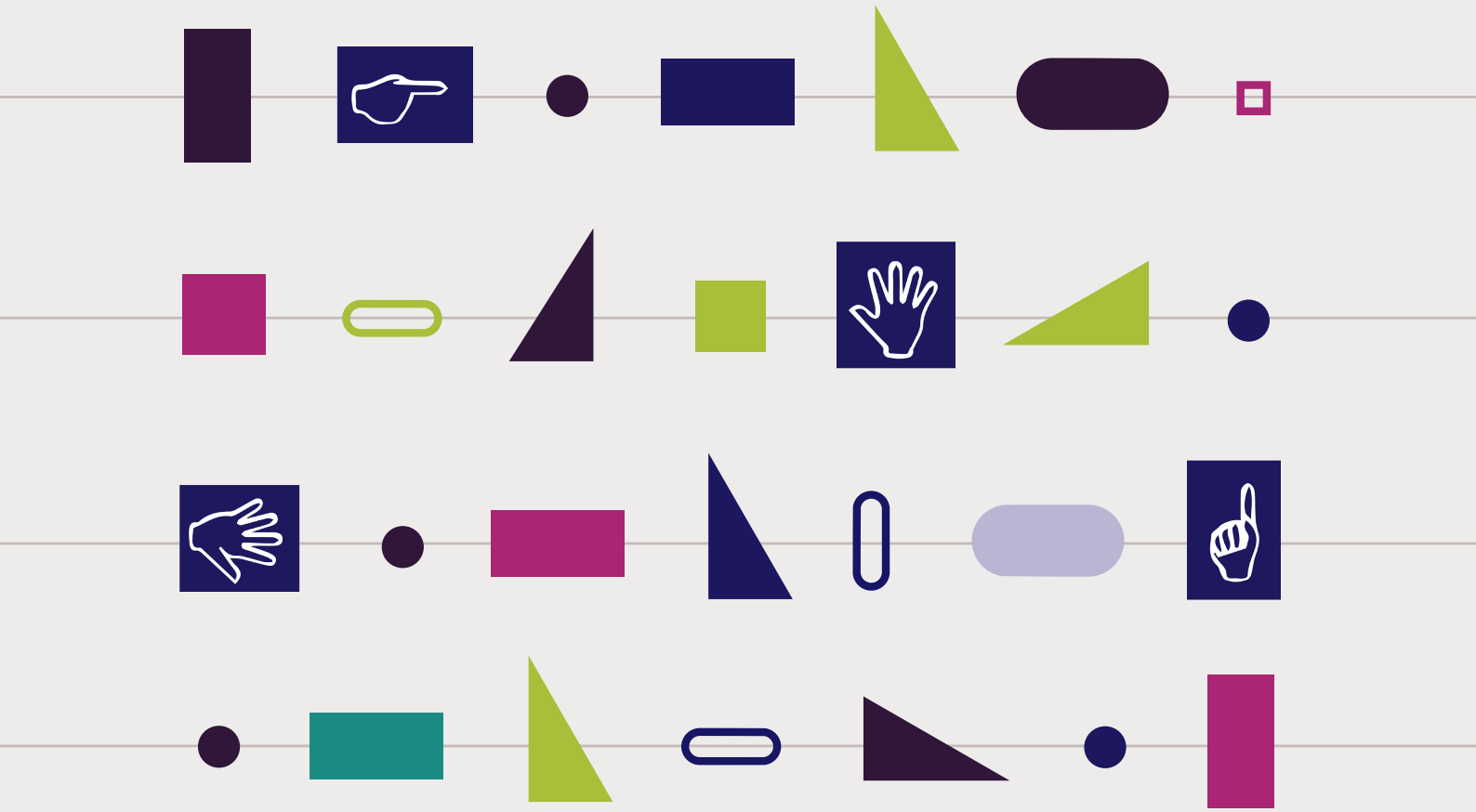

Applying User-Centered Design to Data Use Challenges:

What We Learned

May 2017

TR-17-161

USAID
FROM THE AMERICAN PEOPLE

PEPFAR

MEASURE Evaluation

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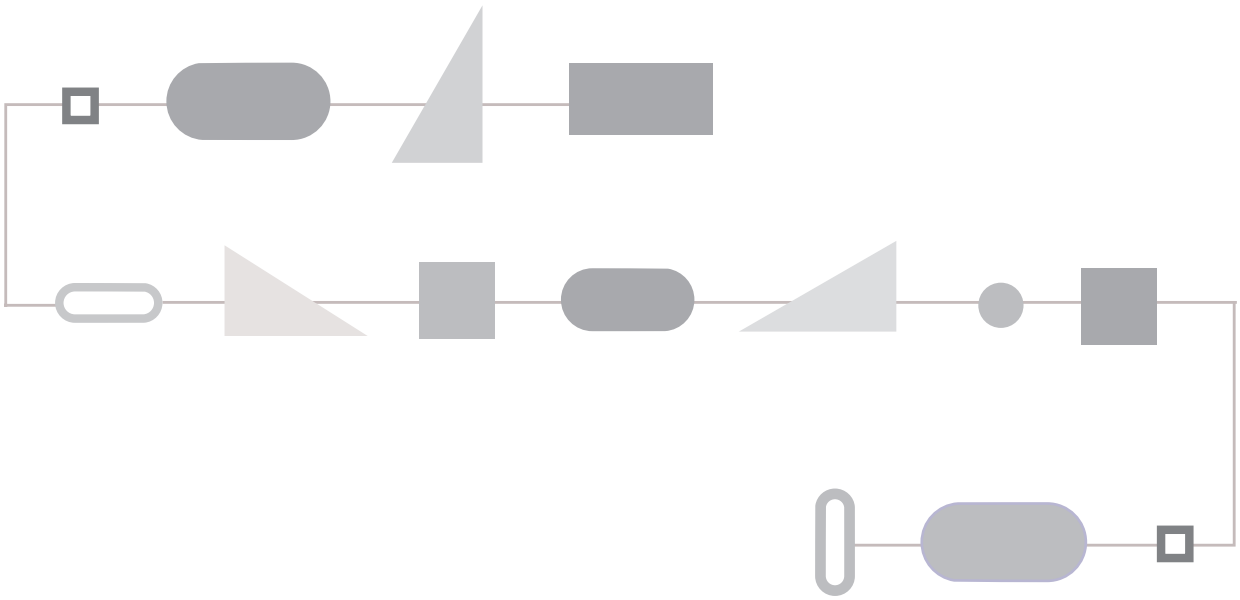
Photos on pages 8 and 16 (top left): Amanda Makulec, MEASURE Evaluation

All other photos: Matchboxology

Contents

Abbreviations

HIS	health information system(s)
M&E	monitoring and evaluation
MBX	Matchboxology
PEPFAR	United States President's Plan for Emergency AIDS Relief
USAID	United States Agency for International Development



Summary

Designing for Data Use

Health systems are rich with data. A challenge in strengthening health information system(s) (HIS) is finding meaningful ways to translate these data into information that decision makers use for policy, planning or program decisions. To address this issue, significant attention has been paid to designing technological tools to make data more usable. For example, tools such as dashboards facilitate the availability of interpretable data and can have a role in encouraging effective use of data for decision making. However, the use of these technological tools depends on the behavior of providers, managers, and policymakers who must first see the value in using them.

Thus far, less attention has been paid to the human factors that motivate or discourage health staff from using data—factors that themselves can be barriers to the use of innovations. MEASURE Evaluation (funded by the United States Agency for International Development [USAID] and the United States President's Emergency Plan for AIDS Relief [PEPFAR]) worked with the South African design firm Matchboxology (MBX) to adapt and implement a user-centered design method to explore these human factors. The design approach engaged data users directly in identifying barriers to data use and prototyping innovative solutions that could be tested and adopted immediately.

Using a design framework enabled us to engage stakeholders in creative facilitation approaches centered on understanding data users and their needs, empathizing with the challenges they face, and brainstorming and designing tangible solutions.

Our Approach

Four districts were selected for the activity: two in Tanzania and two in South Africa. Participants were data users, such as program managers and clinicians, and data producers, such as information or monitoring and evaluation (M&E) officers, working in the field of HIV at the district and provincial levels. In each district, MEASURE and MBX collaborated with the Ministry of Health to conduct immersion interviews, facilitate two design workshops, and develop a set of actionable prototypes for testing.

Each district identified key barriers to data use and created a set of prototypes to overcome the barriers and strengthen the use of HIV data at the district level. Provincial and district leaders were tasked with supporting local adoption and use of the new ideas. In each country, local MEASURE staff were active partners and received recommendations for potential inclusion in future workplans.

Key Lessons

Insights from the participants confirmed and expanded upon what has been documented in the literature about barriers to data use. When tasked with developing innovative solutions to address these barriers, participants created interventions ranging from simple, easily implemented solutions (e.g., half-day role swaps to foster empathy among staff or leveraging of closed user groups on existing communication platforms) to high-investment technology solutions (e.g., creation of mobile applications or portals). Most of the prototypes provided solutions to such problems as a lack of communication and feedback regarding data and performance, an inability to access easily interpretable data at lower levels, and a dearth of support for champions of data use.

One of the limitations of the process was difficulty aligning the timing of the design workshops with existing MEASURE Evaluation processes for work planning. Because of these delays, we plan to budget and implement selected ideas and recommendations in the next fiscal year to more fully understand the effects of the user-centered design approach on data use.

BACKGROUND AND APPROACH

Data Use within Health Systems

Countries are working to improve health information systems (HIS) to produce higher quality and more timely data. However, the mere existence of these data is not enough to guarantee their use in decision making for program planning and policy development. Data-informed decision making is the outcome of complex system dynamics in which technical, organizational, and behavioral factors interact to create specific facilitators or barriers to data use.

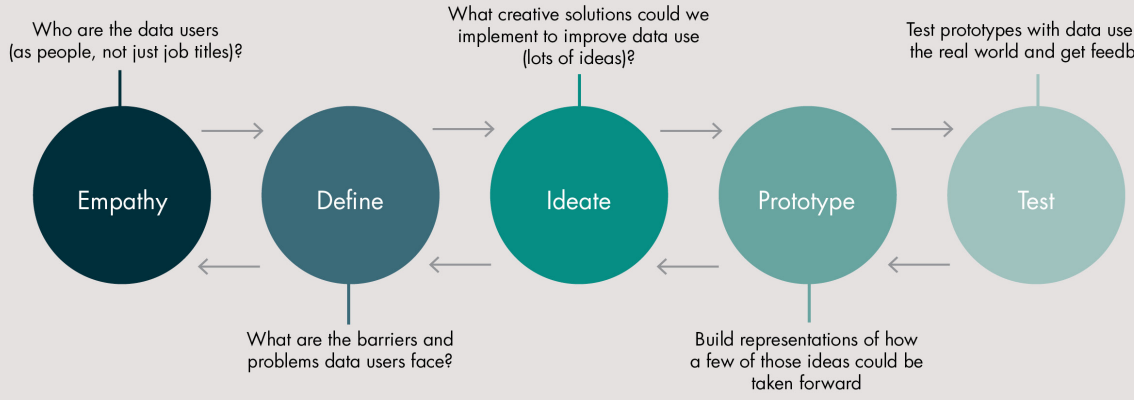
Many different types of stakeholders and individuals are involved in the production and use of data, including health workers, managers, and policymakers. Understanding their motivations, needs, internal decision-making processes, pain points, and experiences as they interact with others and complete work tasks is critical to developing innovative solutions to support the use of data for programmatic decision making at the district level.

MEASURE Evaluation implemented a user-centered design approach to understand the experiences of data users, identify current barriers facing HIS users, and develop creative solutions for tackling these issues.

The design activity followed an iterative process, outlined below, from cultivating empathy with data users to developing prototypes to address critical barriers to data use. This report describes the design process, activities, and outcomes (prototypes) from a user-centered design activity in Tanzania and South Africa.

The user-centered design process uses fun and creative facilitation approaches.

Design Framework
adapted from Stanford d.school



Design Applied to Data Use

The design method was adapted to uncover motivators, barriers, and behaviors that either support or undermine successful program implementation—in this case improved use of data within HIV programs. This approach was selected and adapted, given the alignment between design and the need to engage data users more directly in the process of developing solutions to data use challenges.

Empathy: Looking beyond Job Titles to Personal Experiences

A core principle of user-centered design is empathy—the ability to understand the challenges that others experience. Design looks to uncover the unique experiences of data users, rather than grouping experiences by job title or role. Understanding individual experiences in how key stakeholders use or don't use information, perceptions around work priorities, and motivating factors (e.g., recognition, job satisfaction, and positive or negative feedback from superiors) can help address barriers to data use.

Bringing together people with varied backgrounds and multiple perspectives in the design process creates opportunities to hear from HIS staff with different roles and experiences, fostering deeper empathy.

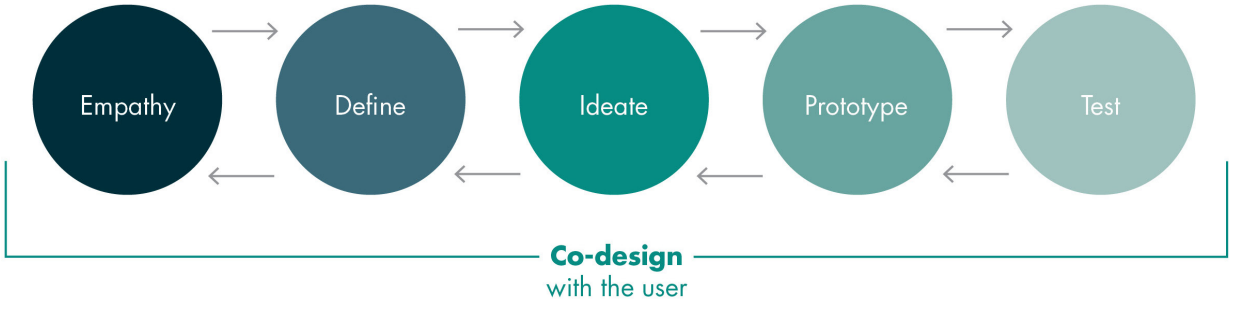
Prototype: Developing Context-Specific Solutions

A user-centered design process is solution-oriented, and emphasizes rapidly prototyping new tools, strategies, or products with users rather than for them. Through workshop activities, participants work with one another to develop innovative, pragmatic solutions that respond to their real-life experiences and understanding of their barriers and pain points in using data for decision making.

Instead of developing a "one-size-fits-all" approach, the design process recognizes that interventions for data use should respond to the unique challenges and experiences that data users have in their daily work. Using a design process results in recommendations for products or tools that are appropriate specifically to the user.

Co-design: Building Ownership through the Design Process

The design process also engenders ownership of and commitment to the data use activities developed, by allowing data users to take on an active role in creating custom-tailored solutions to the challenges they perceive as most critical. Facilitating the process using design techniques and approaches that promote critical thinking through workshop activities helps build a culture of data use, by encouraging the participants to discuss openly and honestly the barriers to data use that arise for them at work. This engagement can increase the likelihood that users will carry design solutions forward and nurture effective and sustainable data use interventions.



Process Overview

Location and Participants

In Tanzania, Temeke (Dar es Salaam) and Mufundi (Iringa) Districts were chosen for the activity after taking into account past experience with data demand and use activities, and priority locations for PEPFAR. In South Africa, Ugu and Ngama Modiri Molema were chosen as focal districts based on variability in past data use experiences and the presence of data use champions. Champions were defined as influential people who have received technical support from MEASURE Evaluation to support and advocate data use activities within their districts.

Interviews and two workshops, led by a facilitator with expertise in design methods, were attended by 15–25 participants. To create the participant lists, MEASURE Evaluation worked with local contacts to identify data users and producers at the district, regional, and national levels. The participants were district information officers (including M&E and HIS focal points), HIV program managers, AIDS control and reproductive and child health coordinators, health secretaries, and clinicians of diverse genders, ages, and management levels.

Immersion Interviews

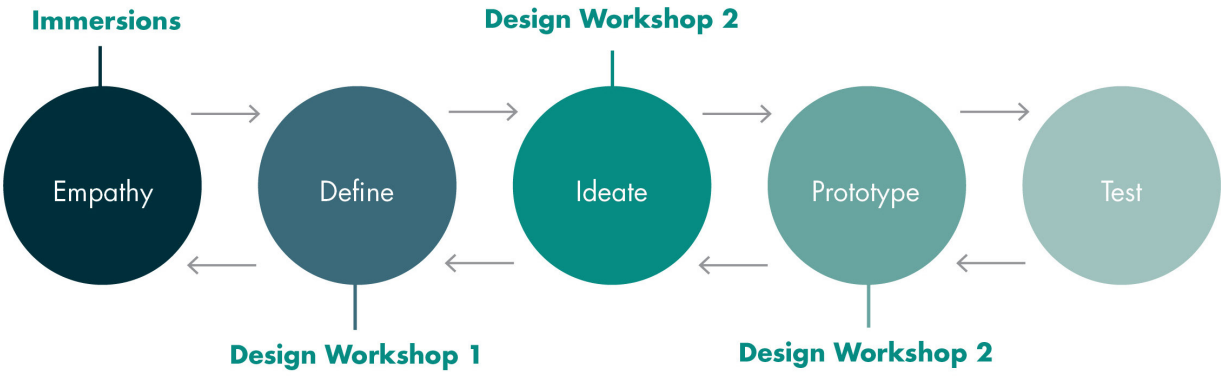
Brief face-to-face interviews were conducted with stakeholders at their places of work. Observing people where they work helped to generate insights about work tasks, pressures, and relationships. These "immersion" interviews explored beliefs, attitudes, and behaviors around data use. Immersion interviews were conducted with the guiding principle of empathy: that is, the purpose was to discover the participants' thoughts, experiences, and motivations without judgment.

Design Workshop 1: Understanding Barriers

The purpose of the first workshop was to collect information about participant needs, expectations, behaviors, motivators, and barriers as the participants worked with the HIS to produce and use data. This workshop included several participatory activities designed to garner empathy for peers and co-workers, such as role-playing, creating personas, and journey mapping.

Design Workshop 2: Ideating and Prototyping

The same set of stakeholders came together for the second workshop. The purpose of this one was to synthesize and validate outputs from the previous workshop, and to brainstorm ideas and recommendations for tools and other interventions to meet the needs and address the barriers that users identified earlier. Participants then developed their ideas into prototypes.



Summary of Design Activities

One of the characteristics of design activities (e.g., immersion interviews and workshops) that is distinct from those of traditional training and engagement sessions is the creative facilitation approach. Facilitation of the design process uses semi-structured activities that give participants an opportunity to put themselves in the minds of others and develop thoughtful, creative solutions to challenging problems. The activities conducted during interviews and workshops are summarized below.

Immersion Interviews

The immersion interviews used creative probes to explore the experiences of data users, such as:

- What do you love best about your job?
- Who is the best data user you know? Why is he/she so good at this job?
- What are the existing motivators/barriers for you to change the way you work?
- How do your bosses measure if you are doing a good job?
- What is the most important aspect of your work? What role do data play?

Workshop 1 Activities

Defining HIS success	Ranking and debating the ideal definition of a functioning HIS as individuals, as small groups, and as a large group
Role-playing	Understanding stakeholder positions around data use and building empathy, by presenting viewpoints and challenges from the perspective of other roles
Truth-testing	Reviewing statements and observations from the immersion sessions to help focus participants on the priority areas around data use
Identifying barriers	Brainstorming barriers to data use from multiple perspectives and problem areas
Creating personas	Developing illustrative characters reflecting observed patterns and people to help understand user cues, actions, rewards, challenges, barriers, and motivations in data use
Journey-mapping	Creating a visual diagram mapping how different personas interact with the HIS in order to use (or avoid using) data for decision making

Workshop 2 Activities

Ranking barriers	Ranking the barriers to data use (produced from the first workshop) and reaching consensus in small groups and as a large group
Exploring barriers	Understanding how a continuum of personal and systemic factors influences the ability of an individual to use data effectively
Brainstorming "how might we"	Brainstorming ideas rapidly in response to "how might we" questions on data use; groups were challenged to brainstorm 60 ideas every 12 minutes to develop a wide range of possible solutions
Prototyping	Selecting the best ideas from the "how might we" brainstorm and working in small groups to develop actionable ideas for achieving successful outcomes in data use

2 FINDINGS

Perceived Realities and Motivators

Many themes and key insights around barriers to data use emerged from the immersion interviews. These were described as "truths" about the experience of using data for decision making, and were designed to represent a range of experiences.

In Workshop 1, participants reviewed these perceptions, assessed the veracity of each perception, and ranked each perception according to its impact on local data use behaviors.

What We Learned

Looking across the four pilot districts in this activity, participants shared common truths around the technical, behavioral, and organizational challenges they face in using information for decision making.

Health Information System (Technical Truths)

- Adequate and timely provision of resources—human, financial, and physical (such as register books)—were foundational requirements. However, there was agreement that financial constraints need to be accepted and that improvements that are not budget-related are possible.
- Clarity is lacking on how data are used once they are passed up the data reporting chain. Existing HIS (e.g., those on the DHIS 2 software platform) are viewed as sufficient but not used properly, as opposed to inadequate.
- There is a consistent tension at the health facility level between data delivery requirements and patient service-delivery requirements, particularly for clinicians under pressure.

Personal Development and Acknowledgment (Behavioral Truths)

- The desire for positive feedback on a job well done was uniform, but in reality, people receive little or no such feedback.
- Training is highly valued as a means to improve performance and for personal development.

Culture (Organizational Truths)

- The impact of good-quality data and data-informed decision making is not well understood by those not actively involved in data management, collection, and reporting. Decisions are often made based on perceptions, not data.
- A desire exists for a culture of data use.

Although there were many similarities in what districts found to be "true," the process also revealed unique insights across districts. For example, the importance and veracity of this item—"*No matter what data we provide, on a national level, policy decisions will primarily be made on a political basis*"—was regarded quite differently among the districts in Tanzania. In Iringa, this statement was hotly debated as one of the most impactful factors affecting data use, with a lot of conflict and passionate debate about it in small groups. In Dar es Salaam, where participants may have more exposure to decision-making processes at the national level, this item was less contested and not substantially discussed.

Defining a Shared Vision of Success

The first workshop opened with determining a shared vision for a successful HIS, from a short list of possible definitions. Participants ranked the definitions individually and then all were asked to come to a consensus about them in small groups and then as one large group.

Each definition emphasized a different aspect of data use within the HIS, from having a user-friendly system that works for staff to seeing demonstrated improvements in health outcomes. The definitions were not designed to be mutually exclusive, but instead to narrow the focus of the group.

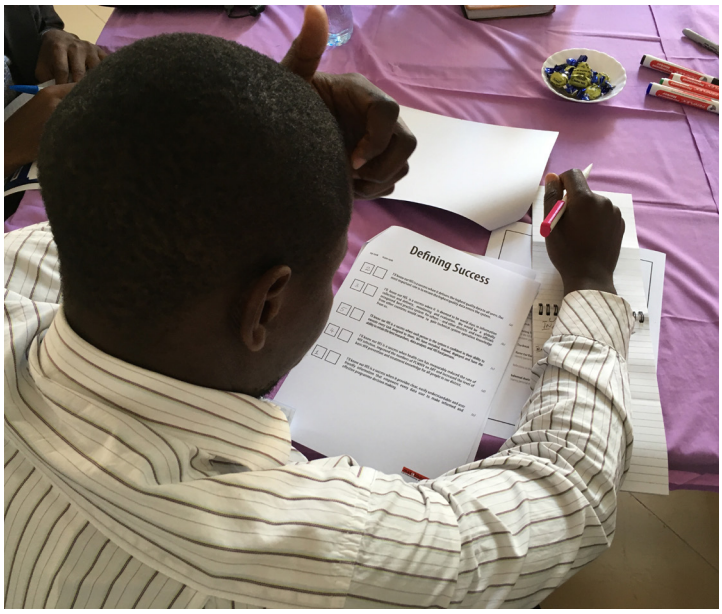
What We Learned

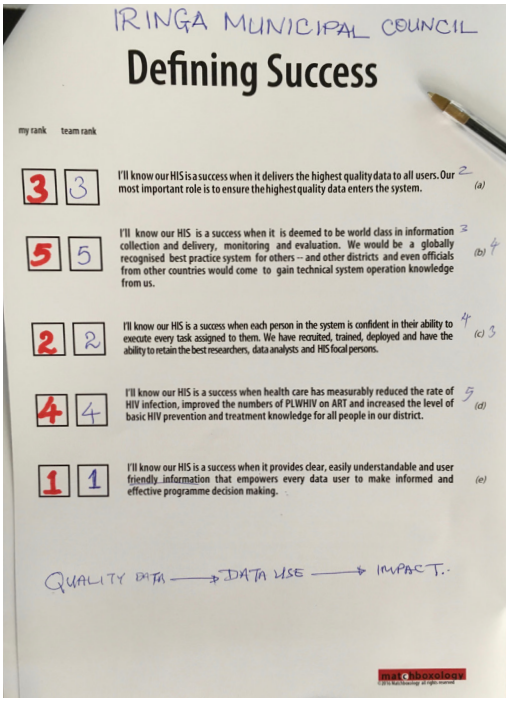
Coming to agreement on a clearly enunciated, shared vision of success helped orient the workshop participants to work collaboratively during the design process to achieve a common goal. The discussions that led to the selection of this definition highlighted the differences among the districts in what they value in their HIS.

For example, in Ngaka District (in the remote Northwest Province, in South Africa), there was a strong drive toward being recognized as a best-performing district in HIS and data use. In Ugu District (in the highly resourced KwaZulu-Natal Province, where multiple partners have invested heavily in data use activities and there was already recognition of HIS achievements), there was a debate between a user-centered system and improved HIV health outcomes as the agreed vision of success.

Ultimately, the four districts in South Africa and Tanzania chose the same definition of success: a user-centered HIS that provides "clear, easily understandable, and user-friendly information that empowers every data user to make informed and effective program decision making."

A workshop participant thinking through the "Shared Vision of Success" exercise in Tanzania





Five definitions of a successful HIS were discussed and ranked in order to determine a shared vision of success.

Developing Data User Personas

To explore the differing experiences of data users, participants created personas to represent different types of data users. A persona is an illustrative character that reflects real user groups or individuals involved in data use. Personas can be used to segment populations and target data-use interventions to specific types of users.

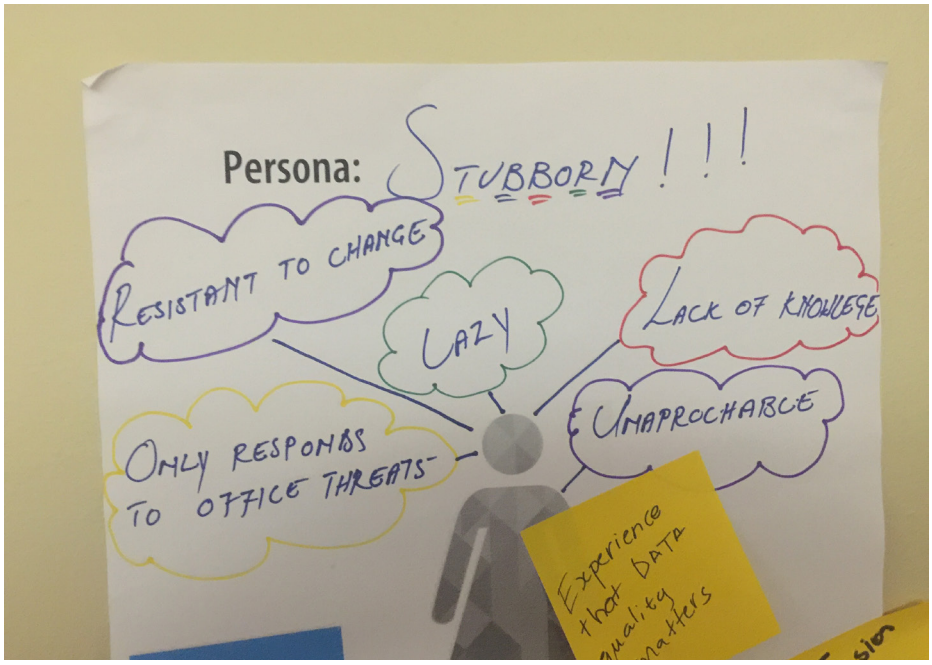
Participants were asked to think beyond job titles and discuss the personalities, attitudes and motivators, challenges and barriers, and responsibilities of various data users and producers in their contexts. The overarching typology of data users is summarized below, in order from those most likely to use data for decision making (i.e., champions) to those most likely to resist efforts to promote data use (i.e., roadblocks).

What We Learned

Data use champions	**Go-getters** love data and want to see the impact from using data. They are strong team players but crave new challenges that they can tackle. They are hard workers and often proactive in their work, but they get frustrated by environments that accept low performers. Go-getters are keen to be trained and learn new skills, and are always curious to understand "why." The desire for perfection can push them to work long hours and burn out.
	Easy-pleasers are diligent workers who go with the flow and are popular team players. They regularly meet deadlines and are keen to train and learn new things. Despite being well liked, they often have low self-esteem and lack confidence. They are desperate to please everyone and quick to volunteer for new assignments, which can make them overworked and overwhelmed.
	Hyperactives are full of energy but can be very emotional. They seek attention constantly and require a hands-on supervisor. They can bring many new ideas to the table but frequently miss deadlines and targets. They are great creative problem-solvers but require a focused workplan and checklists to stay on task.
	Avoiders actively avoid new assignments because of fear of failure and insecurity about their skills. They are keen on training but fear being slow learners. Avoiders were typically not strong in math and technology in school, which can make it hard for them to lead new data-use activities. With feedback and coaching, they can become strong workers and great team players.
	Backstabbers are friendly but quick to criticize others. Backstabbers are often good at their jobs, but they are also quick to take credit for successes and never take responsibility for problems and errors. They can be good team players when things are going well, but managers should be mindful of how they can undermine teams and frustrate colleagues.
	Know-it-alls are autocratic, bossy people who resist change and are not keen on learning new skills. They think "the way we've always done it" is the best way. They have a very patient-centered mindset at the expense of data collection: time with the patient will always trump time spent on reporting. They are poor listeners, are not team players, and are exceptionally pragmatic rather than creative and aspirational.
Data use roadblocks	**Lazy dodgers** are always "busy" but never produce much in the way of quality outputs. They constantly miss deadlines and targets, and they flourish in an environment with no consequences. They are polite and friendly, but are also full of excuses. Lazy dodgers are quick to avoid responsibilities, because they just don't want to do the work. They are quick to volunteer for trainings just to avoid working, not really out of a desire to learn.

Examples of barriers to data use identified by workshop participants in South Africa

Personas that workshop participants in Tanzania developed helped model and summarize the types of data users.



An example of a persona that workshop participants in South Africa developed

Identifying and Ranking Barriers

Participants brainstormed rapidly in small groups to identify barriers to using data for decision making, rooted in their personal experiences. The brainstorming welcomed all suggestions, with barriers captured on note cards. The cards were reviewed, duplications were removed, and the remaining cards were ranked from most to least challenging to data use within each small group.

What We Learned

The barriers identified by participants confirmed and expanded upon what has been documented in the literature. It was easier for participants to name technical barriers to data use, as past interventions have often focused on these issues. The exercise added value for participants, who were able to share their own experiences and ensure that the subsequent prototyping activities would focus on the priority barriers to data use that they themselves had identified.

We further grouped these barriers into technical, behavioral, and organizational categories.

Technical Barriers

System Design

- There is no involvement of the end user in HIS design and review, particularly when new systems and tools are being rolled out.

Technical Skills

- There is a shortage of human resources in general, and of high-capacity staff with expertise in data collection and analysis. There is also inadequate training, particularly refresher trainings to address frequent system updates.

Data Collection Processes

- Data collection tools are overly complicated and do not reflect the realities or requirements at the health-facility level. This is related to the lack of prioritization of data requirements, which leads to competing or conflicting data collection needs.
- Shortages of data collection tools (e.g., sheets, registers, and computers) or interruptions in data flow because of breakdowns in technology and hardware occur often.
- Confidence in the quality of data collected is low, because of delays in data collection, inaccurate and inconsistent data capture, and lack of proper data review at some levels.

Behavioral Barriers

- There is no top-down positive feedback or motivation from higher levels.
- Primary data collectors and managers display a lack of commitment and negative attitudes toward data use.

Organizational Barriers

- There are few champions for data use.
- A greater emphasis is placed on data generation than on data use, and there is a poor understanding of how to use data for decision making across all sectors (e.g., government and donors).
- Lack of clarity, poor communication, and impractical standard operating procedures (SOPs) hinder data sharing and use.

Prototype Development

How Might We. . . ?

In this exercise, the top-ranked barriers identified were used to develop four "How might we" questions. In the design process, "How might we" questions launch ideation, by challenging participants to quickly brainstorm dozens of short ideas (i.e., descriptions that fit on a sticky note). The goal of this exercise is a high quantity of different, novel ideas. The small groups then arranged these ideas according to similar patterns and themes and chose three to five top ideas to develop into prototypes.

How might we improve communication at all levels?

How might we rapidly create a culture of data use?

How might we best ensure good-quality data collection, management, and use?

How might we make training and supervision more fun?

Why Create a Prototype?

Prototypes are the physical manifestation of ideas, such as those generated from the workshops. "Rapid prototyping" challenges participants to develop rough solutions to data use barriers in a short time (less than three hours). Prototypes can take the form of storyboards, process maps, mock-ups, and user guides that define a particular data use innovation that can be taken forward and implemented. The prototyping process gave participants the opportunity to use their own creative problem-solving skills to generate their own solutions and products. The prototypes developed during the workshops are described on the following pages, by location.

Prototypes: **Iringa, Tanzania**

Best Performer Scorecards

Roll out of rapid data use assessment scorecards for health facilities, regional health management teams, and county health management teams to improve data use through creating competition for best-performing facilities. Indicators could include conduct of data review meetings and presence of trained staff.

Addresses: No champions for data use; inconsistency in application of data; inaccuracy and inconsistency in data capture; data not reviewed properly

Data Easy

A simplified, visually engaging feedback report targeted to health facilities that includes permissible photographs to create context. This information product would be used to show performance trends and establish reasons for fluctuation in performance.

Addresses: Poor communication on data sharing and use; negative attitudes and lack of commitment from primary collection-site management or data collectors

Social Media

A messaging-based communications solution (i.e., WhatsApp) to accelerate feedback between data users and producers at the district level to facilitate easy reporting systems, feedback, information sharing, and notification on issues concerning data collection, quality, and use. The service is free, secure, and easy to install and use. Specific administered groups would be created in WhatsApp. The regional focal person would act as the group administrator. Other group members would include the district focal person, health secretaries, medical officers, AIDS control coordinators, reproductive and child health coordinators, and the technical committee at district and regional levels.

Addresses: Poor communication on data sharing and use; inaccuracy and inconsistency in data capture; data not reviewed properly

Prototypes: **Dar es Salaam, Tanzania**

Community Engage

Creation of data awareness and demand in communities to increase accountability for data at community health facilities, and development of a culture of data use and data-informed decision making in communities. The initiative would be led by the ward executive officer and involve county health management teams and community health workers. Simple actions would include having data as a permanent agenda item during quarterly community meetings.

Addresses: Poor communication on data sharing and use; poor understanding of how to use data; negative attitudes and lack of commitment from primary collection-site management or data collectors

HMIS Boost

Creation of better-functioning health management information system units at the health-facility level to form a comprehensive picture of what is happening on the ground, to know which facilities underperform or function well, and to improve the quality of service within facilities. High-performing facilities would be recognized and their best practices shared.

Addresses: Lack of prioritization of data requirements; unclear or impractical SOPs; no champions for data use; inconsistency in application of data; poor communication on data sharing and use

Supportive Supervision Drive

An effort to make supportive supervision engaging and rewarding both for supervisors and those they supervise. Design processes would be used to identify best practices for supportive supervision, understand behaviors and motivations of supervisors, and develop new streamlined and useful tools and checklists.

Addresses: No top-down positive feedback or motivation; no champions for data use; negative attitudes and lack of commitment from primary collection-site management or data collectors

DHIS 2 Connector

A system overlay on the DHIS 2 that uses existing functionality to facilitate communication among all levels of the health system. This instant communication channel could be used to mediate feedback about submitting reports and to facilitate data sharing, analysis, and cleaning. Alerts about data issues or late reports could be generated and action items identified and tracked.

Addresses: Poor communication on data sharing and use; inaccuracy and inconsistency in data capture; data not reviewed properly

A workshop participant in Tanzania presenting a prototype developed to address communication barriers among teams

Prototypes: **Ugu District, South Africa**

UguDoc.com

A secure, one-stop digital portal that connects provincial-, district- and facility-level information officers and doctors with current and archival data, policy documents, SOPs, and other documents, such as highlights on interesting local news from the district health community. What makes this even more useful is the AskMe bulletin board—where specific facility, system, or patient problems/challenges can be posted to receive immediate group troubleshooting help and advice.

Addresses: No top-down positive feedback or motivation; no champions for data use; negative attitudes and lack of commitment from primary collection-site managers; poor communication on data sharing and use

ShoeSwap

A program to build empathy across all participants in the data chain resulting in better motivation, better management, and rapid facility-based problem solving. Each quarter a facility-based supervisor involved in managing the HIS would swap places with a lower-level HIS individual for a short period so the two could experience what it's like to be in each other's shoes. Later, over tea, the HIS facility team would be debriefed for both lessons learned and brainstorming on how to improve HIS performance and impact.

Addresses: Negative attitudes and lack of commitment from primary collection-site management and data collectors; collection tools do not reflect healthcare facility realities or requirements

#NoDowntime

A program to reward facilities and individuals who keep their machines up and running so that all data are submitted on time. This could include a "Help Corps" that empowers tech-savvy individuals in facilities to be the front line of help, a reward program for data capturers offering cell phone data in exchange for timely submissions, and "Tech Police"—an automated virus that corrupts any unauthorized USB device plugged into a facility computer. Preventing computer down time because of viruses or other software issues ensures that computer memory and storage are dedicated to work functions only.

Addresses: Delays in data collection; negative attitudes and lack of commitment from primary collection-site management; negative attitudes and lack of commitment from primary data collectors

What the Fun?

A closed invitation-only digital portal for supervisors that holds resources to improve individual leadership, management, and team-building skills. Sections would include Team Building Actions & Ideas That Work; Reporting Made Easy; Performance Reviewing; and Supervisors In Action (case studies of what's working in the district). Gamifying this with level-up opportunities for participation, interaction, and implementation would be exciting and highly motivating to supervisors. Comparative performance could also be displayed in an analog format (e.g., wall charts) to encourage competition and gamification.

Addresses: Negative attitudes and lack of commitment from primary collection-site management and data collectors; no top-down positive feedback or motivation

Help Yourself Desk

A district WhatsApp support group to escalate and solve technical and computer-related issues so that computer downtime does not affect data reporting. The group would consist of an IT tech as the group administrator, with volunteer SuperUsers who are trained via special tech workshops and capable of first responder machine/software fixes.

Addresses: Interrupted or nonexistent data tools; delays in data collection; shortage of collection tools

Wow Me Now

A widely accessible portal offering flexibility in visualizing nearly real-time data. The portal could include cascade maps highlighting the impact of trends, geographic information system mapping to make resource planning more efficient, and relationship maps to define who influences what.

Addresses: Poor communication on data sharing and use; focus on generating but not using data

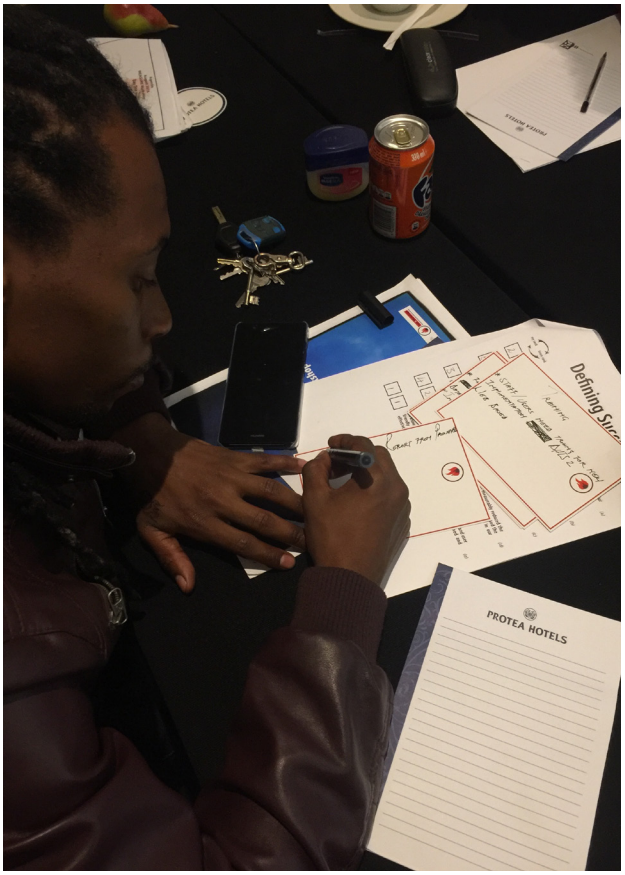
SOMQULU App

This mobile/tablet app is based on the insight that current data are rarely presented in useful or interesting forms that address the performance of a local facility. The app would allow users to select only the clinic-specific indicator data set that interests them against a defined geographic territory (province down to facility level) and time frame (allowing them to view trends as well as current snapshots). The net result would be that the data being collected become relevant to improving local facility impact.

Addresses: Focus on generating but not using data; no involvement of end user in HIS design and review; poor understanding of how to use data

Left: Workshop participants in Tanzania developing a prototype to address barriers to data use

Above: Workshop participants in South Africa developing a prototype to address barriers to data use



Above: A workshop participant in South Africa brainstorming barriers to data use faced in day-to-day work settings

Prototypes: **Ngaka District, South Africa**

What's Up Health

A social/business media-based communications solution using WhatsApp or "Slack." Slack is a real-time messaging, archiving, and search platform for teams (see http://slack.com). What's Up Health would bring all district/provincial data-related communication together in one place—allowing feedback, messages, and file sharing in team-specific channels. The service would be free, secure, and easy to install and use. WhatsApp would use specific administered groups. For example, the Ngaka Modiri Molema District Group Administrator would include all managers, data capturers, representatives from ward-based outreach teams, clinicians, information officers, partners, program coordinators, counselors, administrative clerks, and data cleaners.

Addresses: Poor communication on data sharing and use; inaccuracy and inconsistency in data capture; data not reviewed properly

Clinicians on Board

An engaging and rewarding clinicians' data-sensitization program focusing on development of and inclusion of data management in higher education curricula, inclusion of data management in clinicians' key performance areas, and training for using data to manage (e.g., training on data element definitions, indicator calculations, setting targets, use of pivots, data analysis and interpretation, and report writing and presenting).

Addresses: Poor communication on data sharing and use; inaccuracy and inconsistency in data capture; poor understanding of data use; negative attitudes and lack of commitment from primary data collectors

Three of the prototypes in South Africa focused on expanding or embellishing the existing Data Use Champions initiative implemented through MEASURE Evaluation:

Ngaka District

Data Use Champion Cascade

Appointment of data use champions across multiple levels including provincial/district/subdistrict information officers, program managers, facility managers, clinicians, and data capturers to rapidly create a culture of data use. This program would include the development of a toolkit for refining presentation, facilitation, and supervision styles; awards for recognition among champions; embrace of clinicians as champions; sharing of good practice tools and use of the What's Up Health communications system.

Addresses: No champions for data use; inconsistency in application of data; inaccuracy and inconsistency in data capture; data not reviewed properly.

Champion Facilities

A facility-level assessment mechanism to identify exemplary data use and share best practices, benchmarking, gap analysis, performance rewards, and the fulfillment of service delivery mandates.

Addresses: No champions for data use; inconsistency in application of data; inaccuracy and inconsistency in data capture; data not reviewed properly

Ugu District

LoveData: Embellishing the Data Use Champions

Communications and engagement elements designed to raise the profile and status of data use champions. Those who volunteer (open to anyone in the data chain) receive extra training in data management and leadership skills (perhaps forming the core of the "Help Corps" as above) and are rewarded based on the overall HIS performance of their facility (to motivate them to perform in their data-use champion role). Individuals would be identified via a LOVEDATA badge/pin on their uniform and compete for special recognition in the prestigious Provincial MESEA awards.

Addresses: Lack of prioritization of data requirements; no champions for data use; lack of expertise on data collection and analysis; negatives attitudes in the site

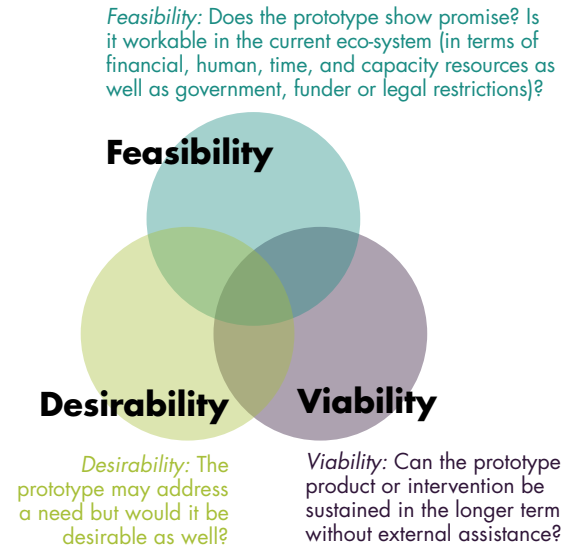
3

RECOMMENDATIONS AND REFLECTIONS

Recommendations and Reflections

Recommendations for Data Use Innovations

Many ideas emerged from the workshops and completed prototype development that could be taken forward by local government or MEASURE Evaluation teams in Tanzania and South Africa. MBX, as the design partner on the activity, provided a summary of recommendations for next steps that would be feasible within specific periods.



Adapted from Ideo.org (2015). The field guide to human-centered design. Palo Alto, CA: Ideo.

60 days

- Re-engage districts that produced the prototypes to develop them further and field-test them.
- Create a one- or two-line "elevator pitch" on why data are important, and make sure everyone—including ministers, district leaders, and press spokespeople—consistently uses it.
- Increase emphasis on data use within the package of requirements for health facility support visits.

120 days

- Conduct a context analysis of ad hoc requests asked of HIS users, because these were highlighted as a major barrier to productivity. Where requests occur repetitively, adjust workplans to mainstream these activities into SOPs.
- Include positive feedback, where appropriate, as a key performance indicator for managers and supervisors.
- Institute an easy-to-use daily planner that requires a dedicated five-minute review every morning so that key activities are prioritized and can be accomplished in a timely manner.
- Provide infographics for clinicians and others at the health facility level to highlight the impact of data on health outcomes.
- Disseminate impact reports down the data chain to all levels, including clinicians and data capturers, to confirm the value of data and promote interpretation and use of data at the health facility level.
- Print a visual user guide that goes with all paper-based data collection tools to promote appropriate and consistent data use.
- Collaborate to create training tools/guidelines for staff members with DHIS 2 focal points (such as the Health Information Systems Program) and institutional knowledge so that turnover doesn't require immediate training, which can be difficult to provide.

Long-term

- Develop a tracking system for data submissions so that every level can see confirmation that their work is contributing to a larger, more impactful picture for data capturers and decision makers.
- Encourage departments of education to integrate data use for better decision making in science and medical school course curricula to seed a culture of data use at an earlier stage.
- Humanize reports through photographs and personal stories with permissions/protections applied.
- Introduce or refine routine auditing of data quality at the supervisory level to minimize the manipulation or falsification of data at the facility level.

Recommendations for Applying Design Thinking

Participants strongly desired to have access to some of the facilitation tools to replicate the activities with their own teams at the provincial, district, and facility levels. In Ugu District (South Africa), two participants have replicated design activities and sent the following reports on their success.

On replicating the **"defining HIS success"** activity at the provincial level:

"I scheduled this into the programme as an icebreaker (15-minute discussion) after seeing it in action at your workshop on Thursday."

"It was even better than expected. The session lasted about 45 minutes when I had to call time, and it was continually referenced throughout the rest of the discussions. The discussions were animated with strong beliefs expressed on what was more important and where our priorities should lie."

"There was definitely a difference in opinion between the programme management at the district level, who had limited exposure to their data and didn't interaction regularly with data, and the M&E staff, planners, and district information officers who had greater exposure to various data sources and regularly interacted with the data."

On replicating the **"testing truths"** activity at the facility level:

"I am really so excited about the workshop held."

"I used the red and green arrow to indicate the most and least detrimental statements to setting targets [using statements developed for our facility]."

"There were four groups, and they had to put these statements according to the arrows. Then they had to identify the three statements that will be the least detrimental to targets. The groups had to present and give reasons."

"The top three out of the groups were then identified. [The three primary "truths" that affect activities for setting targets include]:

- Analyzing why you missed the goal is important. When we dig in, we often find ways of improving. But recognizing our progress is also important. And it can keep us motivated to stay on task.
- Our targets can only be reached through a vehicle of a plan in which we must fervently believe, and upon which we must vigorously act. There is no other route to success.
- Targets need to be set from the lowest level.

We then discussed the target setting and the importance to set from the lowest level."

"It was such a productive workshop and learning experience for the entire group."

Workshop participants in South Africa debate the importance and veracity of different "truth statements" regarding data use.

Key Learning: Advice for Future Design Approaches

Throughout the design process, multiple considerations and actions supported MEASURE Evaluation's success in testing a user-centered design approach to develop new data-use innovations.

Planning

- Engage local individuals or teams to identify districts and make local connections.
- Create short summaries that can be used to explain the activity to potential participants.
- If feasible, observe existing meetings and forums connected to data use (e.g., routine data or performance review meetings) to gain different insights on the interactions and discussions related to data use in practice. Use existing tools and checklists when observing data or performance review meetings.
- Provide a long lead time on invitations to district-level staff.
- Align the timing of workshops with existing work planning.

Design Activities

- Invest in strong facilitators who can manage a design process, understand the issue, and encourage participants to think critically and in different ways about the identified issues.
- Pilot and pre-test the workshop activities to practice framing the issue and ensure successful outputs.
- Invest in time for the immersion interviews, to understand data use at the forefront more deeply. Invite a diverse group of attendees to ensure that multiple perspectives are heard.
- Encourage active participation by provincial/regional staff (where possible) to create added accountability and opportunities to escalate system issues to higher levels.
- Use highly interactive activities and creative facilitation, such as the use of music, to keep participants deeply engaged throughout the workshop.
- Use local experts and staff who understand the data use context to help probe and encourage participants to uncover new insights and solutions.

Testing Ideas

- Provide detailed feedback decks and immediately share facilitation materials with local stakeholders in order to build on the momentum for action generated during the workshops.
- Identify highly motivated people (i.e., data use champions) to move prototypes forward.
- Agree upon an action plan with time lines and responsibilities for further testing the prototypes.
- Identify technical and financial support mechanisms prior to the workshops, to help people at the district level to take their ideas and recommendations forward.

Evaluating Success

- Plan feedback mechanisms to follow up with people such as data use champions and local data use advisors to provide additional context and updates on next steps.
- Devise a long-term evaluation strategy (if resources allow) to assess both the effect of the design process and the impact of the prototypes taken forward, using a mixed-methods approach.

Reflections and Next Steps

Reflections on the Design Process

Evaluations from participants highlighted the value of the workshops in creating an open space for participants to identify challenges, develop shared understanding, and generate their own ideas and solutions. Participants greatly appreciated the participatory approach used, and valued the opportunity to think critically and share experiences across sub-districts.

Creating space to connect for participants representing different roles, departments, and divisions added value, and some participants noted that the informal sharing of ideas was a highlight. One participant in South Africa noted their favorite element of the workshop was "arranging gaps according to which ones are more challenging, and sharing how different sub-districts and facilities are operating and copying best practices."

Adapting the Design Process

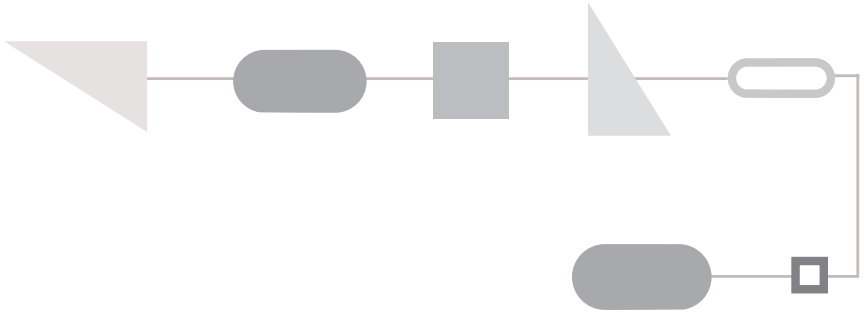
Some participants were excited to immediately test and replicate select facilitation methods (including the "defining HIS success" and "testing truths" exercises, as described previously) with their own teams. They indicated that this was part of an overall shift in mindset about how they addressed questions about how the HIS functions overall and how data generated by the HIS are used.

Participants both in Tanzania and South Africa stated that they would try to use some of the workshop methods in their regular work, such as in routine capacity building and data-quality assessment activities.

Testing the Prototypes and Next Steps

At the end of the workshop, some participants accepted responsibility to move some of the prototypes forward. For example, a data use champion in Ngaka Modiri Molema District, in South Africa, is using a "key-points presentation report" to seek approval from the district manager to implement particular prototypes.

MEASURE Evaluation will look for opportunities to include selected prototypes and recommendations from this activity in future workplans in South Africa and Tanzania, or in other similar settings. Through the Global Fund to Fight AIDS, Tuberculosis and Malaria, John Snow, Inc. is adapting and applying a design approach to data use challenges in West Africa to further test this approach to improve the use of data for decision making.



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